MIDI PERFORMANCE SERIES

MIDI/8 Plus
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MIDI/8 plus™

RECORDING SOFTWARE
FOR MIDI-EQUIPPED
SYNTHESIZERS

Now with:
8 Channel
Unlimited Track Recording
Tape Sync
Auto-Correct
Single Step Editing

Written by John Melcher

PASSPORT

FOR ROLAND MPU-401

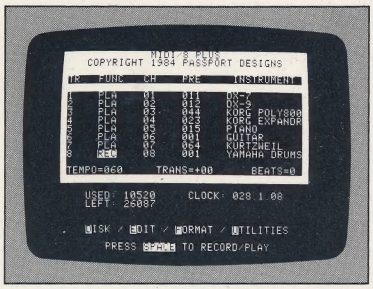
for Apple *IIe*

MIDI/8 plus™
FOR ROLAND MPU-401
PASSPORT

MIDI PERFORMANCE SERIES

MIDI/8 plus™

Intelligent Software For Use With The Passport MIDI Interface™


MIDI 8 PLUS
COPYRIGHT 1984 PASSPORT DESIGNS
TR FUNC CH PRE INSTRUMENT
1 PLA 01 011 DS-A
2 PLA 02 012 DS-B
3 PLA 03 044 KORG POLY800
4 PLA 04 023 KORG EXPANDR
5 PLA 05 015 PIANO
6 PLA 06 001 GUITAR
7 PLA 07 064 KURTZWEIL
8 REC 08 001 YAMAHA DRUMS
TEMPO=060 TRANS=+00 BEATS=8
USED: 10520
LEFT: 26087
CLOCK: 028.1.08
DISK / EDIT / FORMAT / UTILITIES
PRESS SPACE TO RECORD/PLAY

- Unlimited overdubbing on eight separate channels
- Select from 16 different channel assignments
- Controls one or more MIDI equipped synthesizers
- Syncs to and from tape, MIDI, and drum machines
- Sequence chaining, linking, and merging
- Punch-in/Punch-out
- Independent Track Looping
- Auto-correct to 32nd note triplets
- Fully polyphonic: digitally records all controllers including velocity, pitch bend, preset changes, after-touch, and breath control
- Real time tempo control
- Over 6,000 note recording capability

MIDI/8plus is a powerful and expandable MIDI software program that will revolutionize the way you record music. With your MIDI synthesizer, drum machine, personal computer, and MIDI/8plus, you can compose, orchestrate, and arrange complete multi-track recordings. MIDI/8plus lets you take advantage of all that MIDI has to offer. An intelligent alternative to sequencer "boxes," MIDI/8plus combines studio quality recording with the power and flexibility of a personal computer.

Since every nuance of your performance is digitally recorded, you can edit and auto-correct with incredible precision. Using the beat clock and single step play back, you can punch in and punch out wherever you like, accurately editing up to 24 divisions in a single beat. And unlike overdubbing on tape, you'll have no loss of fidelity in your recording. MIDI/8plus gives you the time and freedom to get it right before you get it on tape.

Passport Designs Inc. is the first software company in the world to be entirely dedicated to the development of music software. Our commitment to providing musicians with the most advanced technology available has led to the development of our MIDI Performance, Printing, and Education Series of integrated MIDI software programs. Look for Passport programs that integrate with MIDI/8plus at fine music stores worldwide.

Requirements:
1 Apple II+, //e, or Commodore 64 computer
1 Disk drive with controller
1 video monitor or television with modulator

1 ROLAND MPU-401 INTERFACE CARD

1 or more MIDI equipped synthesizers
(additional synthesizers, drum machines, and tape recorder optional)

PASSPORT

Passport Designs, Inc.
625 Miramontes St.
Half Moon Bay, CA 94019

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ROLAND DG MPU INTERFACE KIT

MIF-APL

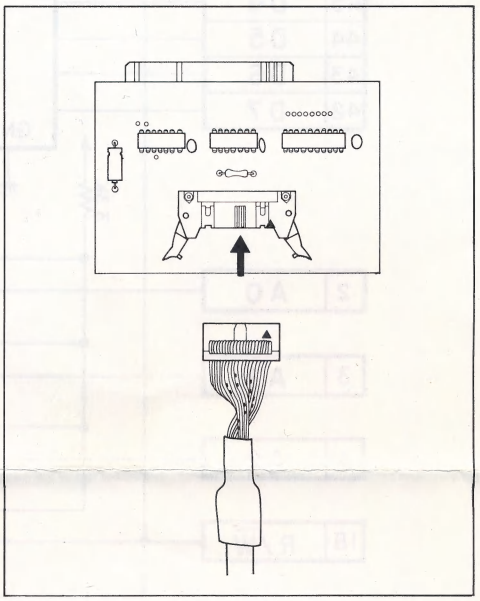
MIF-APL

MPU Interface Kit MIF-APL is for setting up the MPU-401 with the Apple II,*or IIe.*

- Optional software is also necessary.

MIF-APL: Interface Card × 1
Connection Cable × 1

*Appropriate Computer
Apple II
Apple IIe

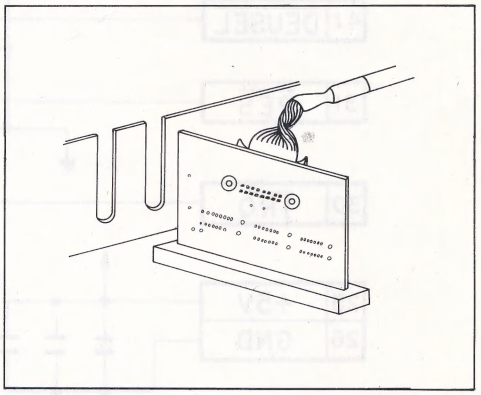


How to set up

1. Make sure that the computer is turned off.

2. Connect the Connection Cable to the Interface Card, then insert it to the Expansion Slot.
   - See the user's manual of the computer.

3. Connect another end of the Connection Cable to the MPU-401. Here, be sure to tighten the screws for secure connection.



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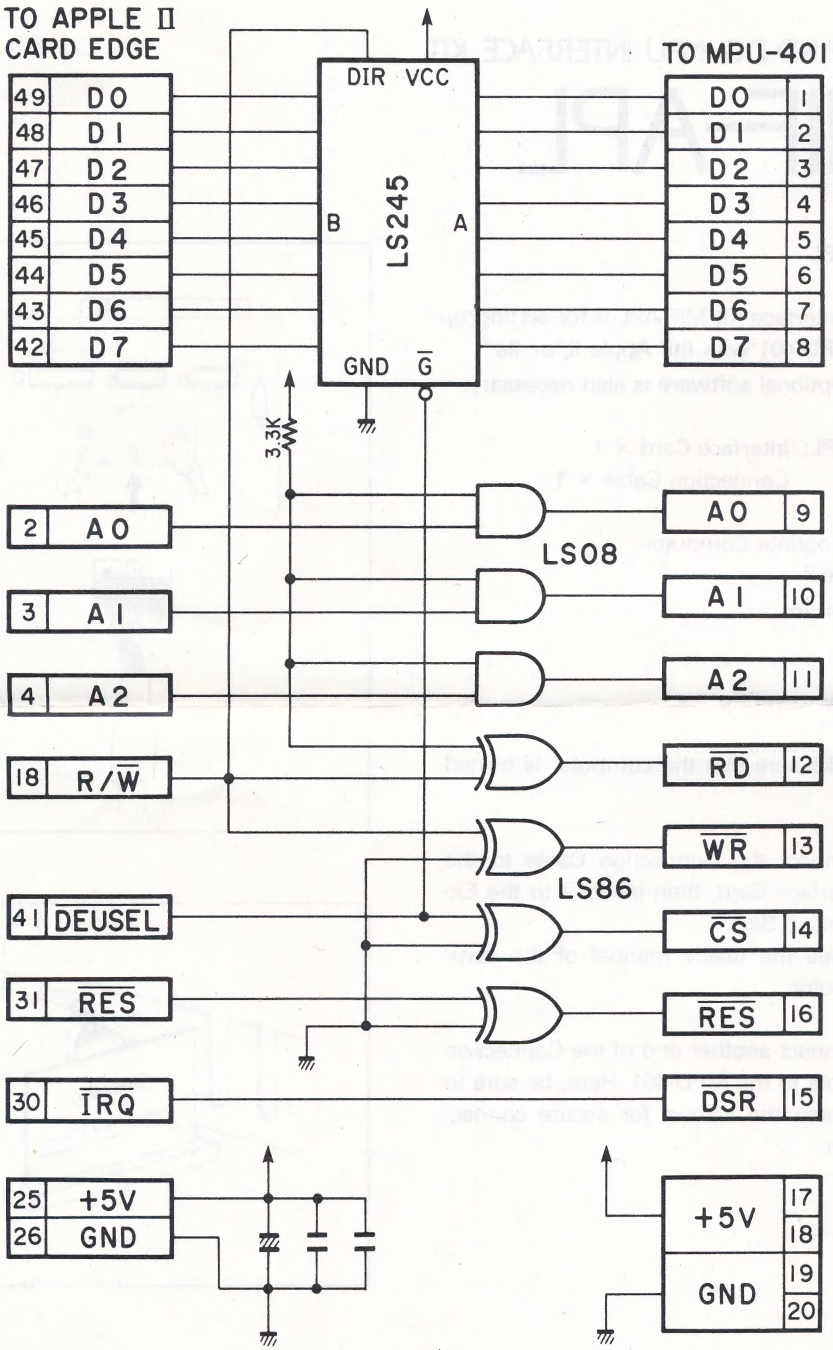
■ Circuit Diagram



Address : CO*n*X *n*: SLOT No+8

Roland

ROLAND DG CORPORATION

MIDI/8 plus
EIGHT CHANNEL RECORDING SOFTWARE
FOR MIDI EQUIPPED SYNTHESIZERS
■ Apple //e
☐ Apple //c
☐ Commodore 64/128
PASSPORT
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FOR ROLAND MPU-401

MIDI/8 plus
EIGHT CHANNEL RECORDING SOFTWARE
FOR MIDI EQUIPPED SYNTHESIZERS
FOR ROLAND MPU-401
PASSPORT
1985 PASSPORT DESIGNS, INC.

IMPORTANT: CHANGES TO MANUAL

The manual enclosed with this sequencing software was written for use with the PASSPORT INTERFACE. To use this software with the MPU-401 please note the following changes and/or additions to the manual.

INSTALLATION:

1. The MPU-401 interface is to be placed in SLOT #2.

AT ALL TIMES:

1. MIDI THRU is available from MIDI OUT on the interface except during disk access. If you use a remote or controller keyboard you will be able to play your module (or keyboard) whether or not the sequencer is running.

DURING PLAY:

1. Pause, fast forward, and step forward operate as described with one addition, a MIDI drum machine will now follow the sequencer during fast forward.
Fast rewind and step rewind are NOT available.
3. In order to punch-in you must first enable punch-in for that track from the Utilities menu. The rest of the punch-in/ punch-out procedure is as described in the manual.

DURING RECORD:

1. The metronome will now indicate the downbeat with a higher pitched click. Because the MPU-401 produces the metronome, the click is no longer available at the cassette out port on the Apple.
3. You can no longer record external sequencer start and stop commands into a track.

THE FORMAT SCREEN:

1. The tempo range is now 40 to 250 beats per minute.

THE EDIT MENU:

1. Tracks can now be linked to themselves.

THE UTILITIES MENU:

1. The drum clock rate is not selectable. It is set at 24 pulses per quarter note.
2. The clock options do not include tape. Tape sync is always available from the MPU-401. Consult your MPU-401 manual for details on tape sync.
3. The Controllers option allows the sequencer to ignore after-touch, pitch bend, modulation wheel, breath control, and pedals as you record. When this feature is set to OFF the sequencer will ignore these controllers.
4. When loop is ON each track will loop independently of the other tracks. You can have a track that loops after 4 bars and another track that loops after 24 bars play simultaneously.
5. The Punch-in option must be used to set the track you intend to punch-in to. You must set the track before each punch-in. Set to 0 to clear. You may punch in once per take.

END USER REGISTRATION AND WARRANTY CARD

Serial # Nº 11920 Roland

Thank you for purchasing our product. You will receive full warranty protection providing you fill out and return this card within 10 days after purchase. This registration will entitle you to product updates and customer service.

PLEASE NOTE: If you have purchased a copy protected software product, you MUST return this card to PASSPORT in order to receive a Back-up copy of the program(s) at no additional charge.

PRODUCT PURCHASED _____

DATE _____ PURCHASED FROM _____

YOUR NAME _____

ADDRESS _____ PHONE _____

CITY _____ STATE _____ ZIP _____

AGE _____ OCCUPATION _____

What computer(s) do you own? ☑ Apple II+/e ☐ Macintosh ☐ Commodore ☐ IBM pc ☐ IBM pc jr

What music software do you own/use? _____

What musical equipment do you own? _____

_____

Where did you hear about this product? _____

Comments: _____

_____

_____

_____

_____ _____

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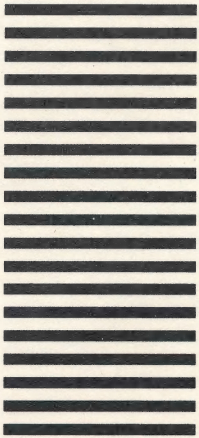

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MIDI/8 plus™

USERS MANUAL

PASSPORT

"The Music Software Source"

MIDI/8 PLUS
USER MANUAL

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2nd Edition, June 1985

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REGISTERED OWNERS of MIDI/8 PLUS are entitled to purchase later revisions of the program for an update fee of $35. SEND YOUR CURRENT PROGRAM DISK(s), along with the update fee, directly to Passport Designs, ATTN: SOFTWARE UPDATE PROGRAM, at the above address.

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Defective media returned by the purchaser during the warranty period will be replaced without charge, provided the purchaser has signed and returned the warranty registration card enclosed with the product, and provided that the returned product has not been subjected to misuse, damage, or excessive wear. Returned media should be shipped in a protective package, postage or shipping costs prepaid, to Passport Designs at the address listed above, and accompanied by a brief description of the problem. Following the initial ninety-day warranty period, defective media will be replaced for a replacement fee of $35.

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1.0 INTRODUCTION

MIDI/8 PLUS is the new "flagship" of Passport's line of Multi-Channel MIDI Software Sequencers. Since the release of the first product in this series in January 1984, thousands of users around the world have found Passport's Software Sequencers to be flexible and reliable creative tools. MIDI/8 PLUS retains the features that make our sequencers the world's most popular MIDI programs, and opens exciting new opportunities for the creative musician.

Standard Features:

* Real-time data entry.
* Over 5,000 note capacity.
* Full recording of all MIDI codes transmitted.
* Unlimited overdubbing and track mixing.
* Easy-to-use track looping.
* Supports both MIDI and non-MIDI drum machines.
* Data file compatibility with POLYWRITER* and MIDI/4.

New "PLUS" Features:

* 8 User-assignable MIDI Output Channels.
* Tape Sync Track READ & WRITE capabilites.
* Internal or External MIDI Clock Sync.
* Switchable External Sequencer Trigger & SYNC START.
* Automatic rhythm correction ("Quantizing").
* "Punch In" and "Punch Out" track editing.
* Fast Forward, Rewind, and "Single-Step Advance."

---

* When used with POLYWRITER UTILITIES

1.1 HARDWARE REQUIREMENTS

The following equipment is needed to use this program:

* One Apple II+ or //e computer with at least 48K RAM memory, 1 disk drive, and video monitor. (64K RAM and 2 disk drives recommended -- see pgs.52, 54)

* One or more MIDI-equipped synthesizer(s).

* One Passport MIDI Interface for Apple (MH-01), and at least two 5-pin DIN cables. Full use of the TAPE SYNC features of this software requires either a Passport MIDI Interface With Tape Sync (MH-02), or a Korg KMS-30 MIDI Synchronizer or similar conversion device.

* Amplifier, headphones, or other audio monitor system.

* OPTIONAL - Programmable drum machine(s) and MIDI Drum Sync Cable Kit.

The MIDI Interface Card must be mounted in Slot #2 of your computer in order for this program to work. For further details on interface installation and correct cable hookup, consult your Interface Card USER MANUAL.

If your synthesizers have "External Program Select" or "MIDI Lock-Out" switches, they must be set to accept external MIDI data.

1.2 GETTING STARTED

The MIDI/8 PLUS Sequencer program is self-loading; the easiest way to start it up is to:

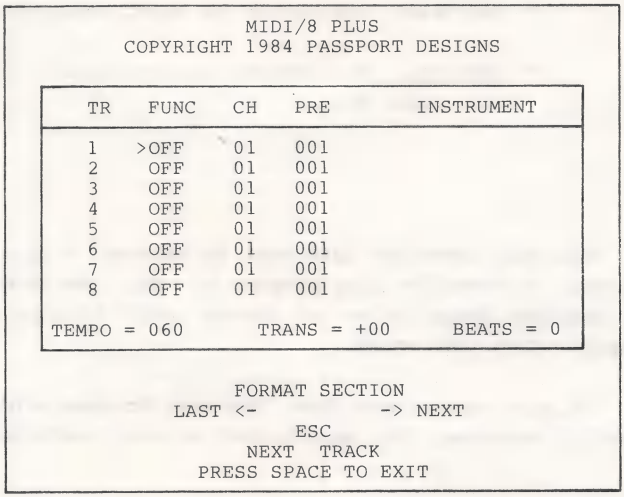
1.) With the computer OFF, place the program disk in your primary disk drive.

2.) Turn on all the instruments connected to your MIDI interface, and...

3.) Then turn your computer on.

4.) APPLE //e USERS: Make sure the CAPS LOCK key is down!

The program will automatically load itself and start up. (If you wish to skip the "boot" screen, press the SPACE BAR) In a few seconds you'll be looking at the FORMAT SECTION:



1.3 "INSTANT" MIDI/8 PLUS

Beginning on pg.12 we conduct a thorough exploration of the features of MIDI/8 PLUS. For those of you who can't wait, though, we now present a short "step-by-step" guide.

1.3.1 Single Track Record & Playback

```
DISPLAY
          FORMAT SECTION
   LAST <-              -> NEXT
                ESC
          NEXT  TRACK
      PRESS SPACE TO EXIT
```

Step 1: Press (R) to set Track 1 to RECORD FUNCTION.
Step 2: Press (SPACE) to exit the Format Section.

```
DISPLAY
 USED: 00016     CLOCK: 001.1.00
 LEFT: 36591

 DISK / EDIT / FORMAT / UTILITIES
   PRESS SPACE TO RECORD/PLAY
```

Step 3: Press (SPACE) to begin recording.
Step 4: Play your synthesizer!
Step 5: Press (SPACE) to stop recording and return to the Format Section.

```
DISPLAY
          FORMAT SECTION
   LAST <-              -> NEXT
                ESC
          NEXT  TRACK
      PRESS SPACE TO EXIT
```

Step 6: Press (P) to set Track 1 to PLAYBACK FUNCTION.
Step 7: Press (SPACE) to exit the Format Section.
Step 8: Press (SPACE) to begin playback.

2.2 TRACK DISPLAY PARAMETERS

Please direct your attention to the column headings:

TR	FUNC	CH	PRE	INSTRUMENT

TR

TR stands for TRACK number; as you can see there are eight TRACKS, labeled 1 through 8. Specific information for each TRACK is listed on the same line as the TRACK number.

FUNC

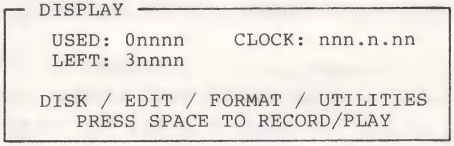
The TRACK FUNCTION can be either RECORD, PLAYBACK, or OFF. To change FUNCTION move the format cursor here and press (R) for Record, (P) for Playback, or (O) for Off. Only one track may be in RECORD at any given time.

CH

CH stands for MIDI OUTPUT CHANNEL. This is only of concern if you have several MIDI-equipped instruments that support "OMNI OFF" receiving mode (see pg.49) or if you have one instrument that can receive multiple channels.

If you've just one single-channel instrument in your system, or if your instruments are "locked" in OMNI ON mode, leave all CHANNEL parameters set to 01.

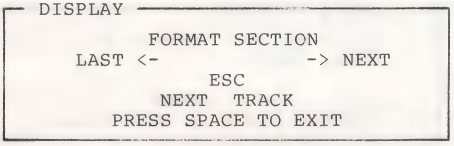
If you have several MIDI instruments, or one multi-channel instrument, use CH to select which MIDI CHANNEL the track is transmitted on. Valid numbers are 1 through 16.



Step 9: Press (SPACE) to begin recording.

Step 10: Play your keyboard some more!

Step 11: Press (SPACE) to stop recording and return to the Format Section.



Step 12: Press (P) to set Track 2 to PLAYBACK FUNCTION.

Step 13: Press (SPACE) to exit the Format Section.

Step 14: Press (SPACE) to begin playback.

1.3.3 Playback of Example Tracks on MIDI/8 PLUS Disk

Several example pieces (performed by our talented staff) are included on your MIDI/8 PLUS program disk. For a demonstration of digital dexterity, you may bring any one of these sequencer files in from disk and play it back as easily as if you'd recorded it yourself.

Step 1: MAKE SURE YOUR MIDI/8 PLUS PROGRAM DISK IS IN YOUR DISK DRIVE!

Step 2: If you are in the Format Section, press (SPACE) to exit to the DISK / EDIT / etc. menu.

```
DISPLAY
  USED: 00016     CLOCK: 001.1.00
  LEFT: 36591

 DISK / EDIT / FORMAT / UTILITIES
   PRESS SPACE TO RECORD/PLAY
```

Step 3: Press (D) to go to the Disk Section.

```
DISPLAY
            DISK SECTION
        C  CATALOG DISK
        L  LOAD FILE
        S  SAVE FILE
        D  DELETE FILE
        R  READ 4-TRACK FILE
        W  WRITE 4-TRACK FILE
        CTRL-I  INITIALIZE
        DATA DRIVE=1  (ESC)
        PRESS SPACE TO EXIT
```

Step 4: Press (C) to see what files are on the disk. All MIDI/8 data files have a ".M8" extender, as in BRANDENBURG.M8.

Step 5: Pick a data file name, and remember it. Press any key to get back to CATALOG / LOAD / SAVE.

Step 6: Press (L) to LOAD a data file.

Step 7: Type in the file's name, without the extender. To load BRANDENBURG.M8, type in BRANDENBURG and press (RETURN)

Step 8: Press (SPACE) to return to the DISK/EDIT menu.

```
┌ DISPLAY ──────────────────────────┐
  USED: nnnnn     CLOCK: nnn.n.nn
  LEFT: nnnnn

  DISK / EDIT / FORMAT / UTILITIES
    PRESS SPACE TO RECORD/PLAY
└──────────────────────────────────┘
```

Step 9: Press (SPACE) to begin playback. The sequencer will play through to the end of the tracks, and then automatically shut off.

While the sequencer is playing, there are four keys you may want to experiment with:

(SPACE) Stop playback and return to Format Section. Pressing (SPACE) two more times restarts the sequence from the beginning.

(ESC) Pause. Press (ESC) again to continue.

(→) (Right arrow key) Speed up playback tempo.

(←) (Left arrow key) Slow down playback tempo.

2.0 FORMAT SECTION IN DEPTH

When working with MIDI/8, you'll find that most of the time the screen is divided into two areas:

The TRACK display...

```
 TR   FUNC    CH   PRE        INSTRUMENT

  1   >OFF    01   001
  2    OFF    01   001
  3    OFF    01   001
  4    OFF    01   001
  5    OFF    01   001
  6    OFF    01   001
  7    OFF    01   001
  8    OFF    01   001

TEMPO = 060      TRANS = +00      BEATS = 0
```

...which shows the current status of the program, and the COMMAND display...

```
                FORMAT SECTION
          LAST <-           -> NEXT
                     ESC
               NEXT  TRACK
           PRESS SPACE TO EXIT
```

...which says what you're doing and which command keys are currently valid.

When you first load up MIDI/8 PLUS, you'll go directly to the FORMAT SECTION commands. FORMAT commands allow you to change the TRACK display and thus determine how your MIDI/8 sequencer/synthesizer system will behave.

2.1 FORMAT CURSOR COMMANDS

Looking at the TRACK display, you should find a flashing [>]. This is the format cursor; when it points to an item, the item is changeable. To move the cursor around the TRACK display, use:

(→) (Right arrow key) To move the cursor right, through FUNC, CH, PRE, INSTRUMENT, then to the bottom of the screen and TEMPO, TRANS, and BEATS.

(←) (Left arrow key) The opposite of right arrow.

(ESC) To select the track you're working on. TEMPO, TRANS, and BEATS are common to all tracks.

(↓) (Down arrow key) Same as (ESC), Apple //e only.

(↑) (Up arrow key) Opposite of (ESC), Apple //e only.

The format cursor "wraps around". If you're pressing the right arrow key and you go past BEATS, the cursor pops back up at FUNC. If you're on TRACK 8 and you press the escape key, it "wraps" up to TRACK 1.

Another Format Section command key you'll want to become familiar with is (SPACE) When you have made all the changes you wish to make in the TRACK display press (SPACE) to exit the Format Section. This sends you to the DISK / EDIT / FORMAT / UTILITIES Menu, and the RECORDER START/STOP controls.

If you accidently press the spacebar before you're done making changes in the TRACK display, select (F) (for FORMAT) from the DISK / EDIT / (etc.) Menu to return to the Format Section.

3.0 BASIC RECORDING & PLAYBACK TECHNIQUES

The basic procedure for recording a single track is:

1.) In the Format Section, move the cursor to TRACK 1 FUNC and press (R) to set the FUNCTION to RECORD.

2.) If you wish to use the Metronome: Move the cursor down to TEMPO and enter a tempo rate, then over to BEATS and enter the number beats in a measure.

3.) Press (SPACE) to leave the Format Section and get to the DISK/EDIT Menu. Note that the following prompt appears at the bottom of the Command Display:

PRESS SPACE TO RECORD/PLAY

4.) TO START: All you do is press (SPACE)! If you have set BEATS to any number except 0, the Metronome will count off that number of beats before recording starts.

5.) When the message <RECORDER IS ON> flashes on the screen, you may start playing. The sequencer is running and recording everything you do, including preset changes, pitch bends, key velocity, and all other controllers.

Maximum track length depends on how fast and polyphonic you play, and how you use pitch bend and modulation. Watch BYTES USED for a dramatic demonstration of how pitch bend consumes memory. We estimate that MIDI/8 has an average capacity of about 5,200 notes which is divided between the tracks as used.

6.) TO STOP: Press (SPACE) again. You are returned to the Format Section. Note that the length of the track is automatically rounded off to the next full beat. This will become very important when you LINK (pg.27) or LOOP (pg.47) tracks.

At the same time, in order to hear the tracks played back you must set a synthesizer´s RECEIVE CHANNEL NUMBER to match the TRACK´s OUTPUT CHANNEL NUMBER. Consult your synthesizer owners manual for instructions on changing the instrument´s RECEIVE CHANNEL and RECEIVER MODE.

The synthesizer´s TRANSMIT CHANNEL NUMBER has no effect on MIDI/8 PLUS, as any track´s playback channel number may be changed at any time. MIDI/8 data is not "channelized" until it is transmitted.

PRE

This is a remote control for the PRESET (Program Number) on your synthesizer. When the sequencer is set to playback, the synthesizer will be switched to this PRESET NUMBER.

Valid PRESET numbers are 1 through 128. PRESET can be entered either by selecting a PRESET on the synthesizer´s control panel or by typing in the number on the computer and pressing the arrow keys to move on. If you´ve entered an invalid number you can´t move on until you´ve corrected it.

There are five things to be aware of when changing PRESET:

1.) Just because you can enter 128 doesn´t mean you have 128 presets. Make sure the PRESET number you type in matches a preset that actually exists.

2.) If two or more tracks are set to the same Channel, then the preset with the lowest-numbered track has priority. If two tracks have been merged into one track (see pg.30) the initial target track preset has priority.

3.) Remember, this is the starting PRESET for this track. If you punch in a preset change on your instrument while recording, the change is saved, too. The instrument will automatically make the preset change every time you play the track back -- even if you change the starting PRESET!

4.) Some instruments use unusual codes to indicate presets such as a letter for the memory "bank" and a number for the preset´s place in the bank, or a "base 8" numbering system. In these cases the PRESET number on the screen will appear to be different from the preset number on the synthesizer´s control panel. Don´t worry; it will still work correctly.

5.) Some instruments have an "External Program Select" or "Preset Protect" function which must be manually switched on or off before it accepts PRESET commands from MIDI/8. Consult your synthesizer owners manual for more details.

INSTRUMENT

Every sequence you record and save can have a different Track Channel number configuration. In a multiple-synthesizer setup this can make remembering which track goes to what INSTRUMENT a little difficult, so we´ve provided this space to help you remember. Type in a name (12 letters max) and (RETURN)

You can use this space to identify the instrument connected to the channel (i.e., KORG POLY800, YAMAHA DX7, etc.) or the sound (i.e., VIOLIN, FLUTE, etc.). It´s there for your reference. Please note, though, this is just a name. It does not affect the CHANNEL setting; you must correctly set that.

To change a name, simply type the new name over the old (you might have to type extra spaces at the end of the new name) and press (RETURN)

Below the track-specific information, you'll find three items which are common to all tracks. They are:

TEMPO

This is the TEMPO for recording and playback speed, and for the metronome (click track) you'll hear during recording. It is entered in beats-per-minute. The valid range is from 25 to 200. Type in a number and use the arrow keys to move on. If the number you've entered is outside the legal range, you aren't allowed to move on until you fix it.

During PLAYBACK (see pg.20), use the → or ← keys to change TEMPO while the sequencer is running.

TEMPO only works if Utility #3, CLOCK SOURCE, (pg.37) is set to INTERNAL or TAPE. If CLOCK SOURCE is set to EXTERNAL MIDI the external clock source will override this control.

TRANS

TRANS stands for TRANSPOSITION; after a sequence has been recorded you may TRANSPOSE it into another key. This makes it possible to record in a key that's comfortable to play in, and play back in the key you wish to hear it in.

The valid range is up or down 12 half steps (one octave). To TRANSPOSE, type in either a + (for up) or a - (for down) followed by a number from 1 to 12. If you enter a number without a plus or minus, MIDI/8 will transpose up.

BEATS

This indicates the number of beats per measure (e.g. 4 for $^{4}4$ time, 3 for $^{3}4$ time, etc.). It is used to set the CLOCK readout (see pg.18) correctly, and also sets the Metronome to "count off" a measure before recording begins.

The allowable range here is 0 through 9. If BEATS is set to "0" the metronome is off, and the measure counter defaults to a two-beat measure.

2.3 EXITING THE FORMAT SECTION

After you've made all the changes you wish to make, press the (SPACEBAR) The command area changes to:

```
USED: 00016        CLOCK: 001.1.00
LEFT: 36591

DISK / EDIT / FORMAT / UTILITIES
   PRESS SPACE TO RECORD/PLAY
```

The USED and LEFT numbers tell you how much memory (in bytes) you are using in your sequence. During recording these numbers change every time you enter an event. An "event" is defined as any MIDI-transmittable command including Key On, Key Off, Preset Change, and Manual Controller Change (such as use of pitch bend). Different types of events consume differing amounts of memory.

The CLOCK tells you where you are in your sequence. The actual numbers mean:

```
      nnn      .   n   .      nn
measure number    beat    beat subdivisions
```

From the menu you may select:

- (D) To go to the Disk Section (see pg.54)
- (E) To EDIT already-recorded tracks (see pg.23)
- (F) To return to the Format Section.
- (U) To go to the Utilities Section (see pg.37)

Or you may begin working with RECORD and PLAYBACK.

3.0 BASIC RECORDING & PLAYBACK TECHNIQUES

The basic procedure for recording a single track is:

1.) In the Format Section, move the cursor to TRACK 1 FUNC and press (R) to set the FUNCTION to RECORD.

2.) If you wish to use the Metronome: Move the cursor down to TEMPO and enter a tempo rate, then over to BEATS and enter the number beats in a measure.

3.) Press (SPACE) to leave the Format Section and get to the DISK/EDIT Menu. Note that the following prompt appears at the bottom of the Command Display:

PRESS SPACE TO RECORD/PLAY

4.) TO START: All you do is press (SPACE) ! If you have set BEATS to any number except 0, the Metronome will count off that number of beats before recording starts.

5.) When the message <RECORDER IS ON> flashes on the screen, you may start playing. The sequencer is running and recording everything you do, including preset changes, pitch bends, key velocity, and all other controllers.

Maximum track length depends on how fast and polyphonic you play, and how you use pitch bend and modulation. Watch BYTES USED for a dramatic demonstration of how pitch bend consumes memory. We estimate that MIDI/8 has an average capacity of about 5,200 notes which is divided between the tracks as used.

6.) TO STOP: Press (SPACE) again. You are returned to the Format Section. Note that the length of the track is automatically rounded off to the next full beat. This will become very important when you LINK (pg.27) or LOOP (pg.47) tracks.

To play back the track you have just recorded:

1.) Move the cursor to TRACK FUNC and press (P) to switch it to PLAYBACK.

2.) Press (SPACE) to exit the Format Section and return to the PRESS SPACE TO RECORD/PLAY prompt.

3.) Press (SPACE) to start playback. The sequencer will play through to the end of the track and then stop.

While the sequencer is playing back, a number of commands are available:

(SPACE) -- Pressing the spacebar at any time will immediately STOP playback and return you to the Format Section.

(->) -- Pressing the right arrow key increases TEMPO.

(<-) -- Pressing the left arrow key decreases TEMPO.

(ESC) -- PAUSE. Press (ESC) again to resume playback from the point at which you paused. Additional commands including FAST FORWARD, REWIND, and SINGLE-STEP ADVANCE are available during PAUSE; for a complete description see pg.34.

PUNCH-IN EDITING -- This feature allows you to instantly jump from play to record while the sequencer is running or paused. For further details, see pg.35.

3.1 BASIC MULTI-TRACK RECORD & PLAY

Unlike a tape recorder, there is no difference between normal playback and sync playback; the eight tracks of the sequencer are always synchronized. Therefore, after recording a track -- and listening to it, if you like -- to record the next track move the cursor to the next track's FUNC and press (R) for RECORD.

A convenient feature of MIDI/8 is that if you go directly from recording one track to the next track, without switching the first track to PLAYBACK, putting the second track into RECORD will automatically switch the first track to PLAY.

You may change any parameter between recording tracks. Most users find that TEMPO and BEATS are the most useful changes. TRANS may be changed but MIDI/8 doesn't transpose while recording; TRANS is tied to playback. Also remember, CH refers to MIDI OUTPUT CHANNEL. MIDI/8 records all incoming data regardless of channel.

The procedure for making a simple multi-track recording is:

1.) Record the first track, as per the previous section.

2.) Switch the second track to RECORD FUNCTION and make any other desired parameter changes.

3.) Press (SPACE) to exit the Format Section and get to the prompt:

PRESS SPACE TO RECORD/PLAY

4.) Press (SPACE) to begin recording the next track.

As before, if you've selected BEATS the metronome will count off one measure before recording begins, and then you'll hear your first track being played back. You may begin playing your second track at any time after the first track has begun, and the second track may be longer or shorter than the first. Press (SPACE) when you're finished, move the cursor to Track 2 FUNC (if necessary), and press (P) to switch Track 2 to PLAYBACK.

Playback of overdubbed tracks is identical to playback of a single track. With all recorded tracks set to PLAYBACK, press (SPACE) once to exit Format Section, and again to start playback.

Note that a track, once recorded, may be switched between OFF and PLAYBACK without harm to the recorded material. Also note that the track's OUTPUT CHANNEL number and STARTING PRESET number may be changed at any time.

OVERDUBBING ADDITIONAL TRACKS

The process of adding tracks #3 through #8 is identical to overdubbing the second track. There is one thing to be aware of, though. Some MIDI instruments have as few as four voices; if all tracks are "channeled" to the same synthesizer, you stand a very good chance of running out of voices before you run out of tracks!

If this happens, you'll notice parts dropping out of the earliest-recorded tracks while you're overdubbing, as the keyboard always has priority over the sequencer. This does not harm the recorded tracks. The data is still there; there's just no voice available to play it. Short of buying another MIDI synthesizer, there is no cure for this condition.

3.2 EDITING TRACKS

MAKE SURE YOU HAVE YOUR MIDI/8 PLUS

PROGRAM DISK IN YOUR #1 DISK DRIVE!

Once tracks have been recorded, you have a number of options for further modifying and manipulating them. The major changes are found under the EDIT heading in the DISK/EDIT Menu.

```
USED: nnnnn     CLOCK: nnn.n.nn
LEFT: nnnnn

DISK / EDIT / FORMAT / UTILITIES
  PRESS SPACE TO RECORD/PLAY
```

The EDIT SECTION is quite large. To maximize the memory available for tracks, EDIT is stored on the MIDI/8 PLUS program disk and only brought in when needed. With the MIDI/8 PLUS program disk in disk drive #1, select (E) from the above menu to call up the EDIT SECTION.

```
          EDIT SECTION

    A  AUTOCORRECT TRACK
    E  ERASE TRACK
    L  LINK TRACK
    M  MIX 2 TRACKS

      PRESS SPACE TO EXIT
```

3.2.1 Autocorrect Track

In the MIDI scheme of things time is divided into MIDI CLOCKS at a rate of 24 CLOCKS per BEAT. These are the "beat subdivisions" referred to in the Measure Counter. (See pg.18,35) During recording, MIDI/8 PLUS faithfully preserves exactly what's played to an accuracy of 1 CLOCK, or (assuming a quarter-note beat) a triplet sixty-fourth note.

Exact reproduction isn't always the best reproduction though. Musicians have come to expect "inhumanly precise" rhythmic accuracy from sequencers, and MIDI/8 sequences depend heavily on accuracy of the person recording the part.

Therefore, we have added AUTOCORRECT to MIDI/8 PLUS. This is a rhythm quantizing feature which "adjusts" the durations of notes in a recorded track, for improved rhythmic precision.

To AUTOCORRECT an existing track, select (A) from the EDIT SECTION menu. You are presented with the prompt:

```
AUTOCORRECT TRACK # (1-8):

TYPE CTRL-A FOR ALL
PRESS SPACE TO EXIT
```

If you wish to autocorrect just one track, enter its number (1 through 8). If you wish to autocorrect all recorded tracks hold down the (CONTROL) key and press (A) (Note: You cannot autocorrect tracks before you record them!)

After you select a track you're prompted with:

```
AUTOCORRECT TRACK #n
1.  QUARTER          (1)
2.  EIGHTH           (2)
3.  8TH. TRIPLET     (3)
4.  SIXTEENTH        (4)
5.  16TH. TRIPLET    (6)
6.  THIRTY-SECOND    (8)
7.  32ND. TRIPLET   (12)
```

Enter the number of the autocorrect resolution you wish. For example, if you wanted all the notes in the track rounded to the nearest eighth note, you would enter (2)

In MIDI, the "standard 24 clock beat" is presumed to be a quarter note. The numbers in the right column indicate the relationship of the resolution to the "standard beat"; there is 1 quarter note in a beat, or 12 thirty-second triplets. If you are working in a non-quarter note time you will need to choose autocorrect resolution by "clocks" rather than name. (For example, with an eighth note beat, resolution setting #2 is actually sixteenth note resolution.)

There are three key points to remember about AUTOCORRECT:

1.) Autocorrect is for fine-tuning acceptable tracks. It can not salvage a really sloppy track.

2.) Autocorrected tracks cannot be "uncorrected". We advise saving the tracks to disk (pg.54) or using LINK to copy a single track (pg.27) before autocorrecting.

3.) Play legato. Notes with durations smaller than half the resolution setting are seen as mistakes and cut out.

3.2.2 Erase Track

There are two ways you can dispose of an unacceptable track. The easiest way is to just put it into RECORD FUNCTION and record over it again.

To completely purge an old track and make the maximum memory space available for fresh material, it's necessary to use the ERASE function. This is done by selecting (E) from the EDIT SECTION command menu. You're prompted:

```
ERASE TRACK # (1-8):

TYPE CTRL-A FOR ALL
PRESS SPACE TO EXIT
```

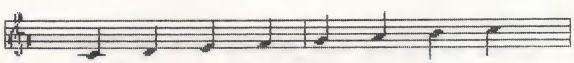
You may erase an individual track by entering its number, or all tracks by holding down the (CONTROL) key and pressing (A)

Following your selection, you'll be asked to confirm that you wish to erase this track; enter either (Y) (Yes) or (N) (No). This is a safeguard, since tracks cannot be "unerased".

3.2.3 Link Tracks

LINK copies data from one track to another. When used, it takes the material recorded on the SOURCE track...

And "links" it to the end of the DESTINATION track...

Resulting in a DESTINATION track that sounds like this.

The SOURCE track remains intact. You may change its OUTPUT CHANNEL, starting PRESET, even erase it entirely and record over it, without affecting the revised DESTINATION track. You have complete freedom to link tracks as you please. The same SOURCE may be repeatedly re-linked to a destination track for "pattern" effects; linked tracks may be linked again, edited, or MIXED (pg.30) as readily as any other tracks.

The one forbidden permutation is linking a track to itself. However, a SOURCE may be linked to an "empty" (previously unrecorded) DESTINATION, producing an exact copy of the original track. This copy can then be used as a source and linked back to the original, which has the same effect as linking the track to itself.

To use the LINK function, select (L) from the EDIT SECTION Menu. You are prompted:

```
LINK A TRACK

SOURCE TRACK # (1-8):
DESTINATION TRACK:

PRESS SPACE TO EXIT
```

After entering the SOURCE and DESTINATION track numbers you are asked to confirm your choice as tracks cannot be "de-linked". Assuming you wish to proceed, the link is made and you are returned to the SOURCE TRACK # prompt. LINK is a very fast procedure; it is usually completed in five seconds or less.

Three Things to Remember about LINK:

* The Source track connects to the Destination track at the EXACT beat in which you pressed (SPACE) to stop recording while laying down the Destination track. The rhythmic accuracy of the linked track is entirely in your hands.

* If you have trouble stopping the sequencer exactly on the downbeat, we have developed an alternative method that, while not exactly elegant, works. It is to record the original DESTINATION track a few beats on the long side, then:

    a) Set TEMPO to 25 and go back through the track using the PAUSE, FAST FORWARD, and SINGLE-STEP commands (pg.34). Note that there are 24 CLOCKS in a BEAT, numbered from 00 to 23, and the beat is on CLOCK 00.

    b) While PAUSED cue the sequencer up to the last beat before the "splice".

    c) PUNCH INTO the track (see pg.35) and immediately hit (SPACE) to terminate PUNCH IN and erase the remainder of the track. With practice and a slow TEMPO you'll be able to punch in and out again inside of 1 beat. The AUTOMATIC ROUND-OFF feature will make sure the CLOCK count is correct.

  This procedure, when executed properly, leaves a very precise track end to "splice" the SOURCE track onto. However, take care not to PUNCH IN in the middle of "playing" notes as this erases the data which turns the note off!

* If you are unsatisfied with the results after you have LINKED two tracks, the above procedure may also be used to erase the track from any point through to the end.

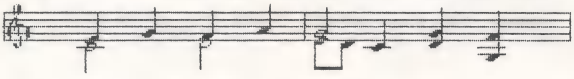
3.2.4 Mix 2 Tracks

While we sometimes call MIDI/8 an "8-Track Studio on a Disk", the truth is it´s not a eight-track recording system. The 8 in the title refers to the number of MIDI OUTPUT CHANNELS; the program is actually an unlimited-track recorder.

Using the MIX feature, any two tracks can be mixed down to a single track. For example, this SOURCE track...

When mixed with this DESTINATION track...

Results in a DESTINATION track that sounds like this.



The combined data from both tracks, including notes, preset changes, and use of manual controllers, now resides on the DESTINATION track, and the SOURCE track is free for further recording.

MIXED tracks are treated the same as any other tracks and may be freely MIXED, LINKED, and EDITED. This bears repeating: Tracks can be repeatedly remixed. Because all tracks are pure digital information, there is no degradation in sound quality no matter how many times a track is "bounced".

The net result is like having dozens of sequencer tracks. The only limits are the number of voices the synthesizers in your MIDI system will support, the fact that all tracks must eventually go out through 1 of 8 OUTPUT CHANNELS, and the total system memory available for note data.

To use MIX:

After recording two tracks and setting them both to PLAY, press (SPACE) to exit the FORMAT SECTION and (E) to get to the EDIT SECTION. Then press (M) . You'll be prompted:

```
MIX 2 TRACKS

SOURCE TRACK # (1-8):
DESTINATION TRACK:

PRESS SPACE TO EXIT
```

After naming your SOURCE and DESTINATION tracks, you'll be asked to confirm your choice.

MAKE SURE YOU HAVE A DATA
DISK IN YOUR DISK DRIVE!

Assuming you have a disk in the drive and wish to proceed with the mix, press (Y). When MIX finishes you'll return to the Edit Section Menu. Note that in the Track Display, the DESTINATION track is in PLAYBACK and the SOURCE track has been switched OFF. All data previously in the two separate tracks is now in the DESTINATION track; the SOURCE track has been erased.

Two last considerations about MIX:

* If the SOURCE and DESTINATION tracks had different OUTPUT CHANNELS, they are both routed out the DESTINATION track's CHANNEL now. One track cannot go out two different channels, but any number of synthesizers can be set to receive the same channel, and thereby the same track.

* Once mixed, tracks cannot be "unmixed". We advise saving the separate tracks before mixing, in case you want to undo the mix later. (See DISK SECTION, pg.54)

3.2.5 Exiting the Edit Section

MAKE SURE YOU HAVE YOUR MIDI/8 PLUS

PROGRAM DISK IN YOUR #1 DISK DRIVE!

Depending on the Edit function you select, you're returned to either the first line of the function, or the EDIT SECTION Menu, when you have completed the function.

```
EDIT SECTION
A  AUTOCORRECT TRACK
E  ERASE TRACK
L  LINK TRACK
M  MIX 2 TRACKS
PRESS SPACE TO EXIT
```

Because of the size of the EDIT SECTION, a major part of the sequencer must be re-loaded from the disk when you have completed editing and are returning to normal program operation. With the MIDI/8 PLUS program disk in disk drive #1, press (SPACE) to return to the DISK/EDIT/FORMAT/UTILITIES Menu. If you do not have the MIDI/8 disk in the drive, you'll be prompted to insert it.

```
USED: nnnnn        CLOCK: nnn.n.nn
LEFT: nnnnn

DISK / EDIT / FORMAT / UTILITIES
   PRESS SPACE TO RECORD/PLAY
```

3.3 PAUSE

While the sequencer is in PLAYBACK mode and running, you may PAUSE at any time by pressing (ESC).

While the sequencer is PAUSED, six commands are available:

(F) FAST FORWARD. This has 3 speeds; press (F) again to increase the speed, or any other key to stop and resume PAUSED status.

(R) FAST REWIND. This also has 3 speeds; press (R) again to increase the speed, or any other key to stop and resume PAUSED status.

(->) SINGLE-STEP FORWARD. Move ahead 1 CLOCK. There are 24 CLOCKS, numbered 00 to 23, in a BEAT. This is not affected by the number of beats in a measure or the value of the beat note. 24 CLOCKS PER BEAT is "MIDI Standard Time".

(<-) SINGLE-STEP REWIND. Move back 1 CLOCK.

(ESC) RESUME PLAYBACK from the point indicated by the Measure/Beat/Clock counter.

You may freely switch between any of the above commands. The sixth command, PUNCH-IN RECORD, is covered in depth beginning on page 35.

You can not PAUSE while in RECORD mode, nor can you change TEMPO while PAUSED. The arrow keys only increase or decrease TEMPO while the sequencer is in PLAYBACK and running.

3.4 PUNCH-IN RECORD

With the sequencer in PLAYBACK and either running or paused, you may PUNCH IN to RECORD mode at any time. This is done by pressing a number key (1 through 8), which immediately puts the related track into RECORD mode. (Press (1) to punch into Track #1, (2) to punch into Track #2, etc.) You may begin to record new material as soon as you have punched in.

If you were PAUSED, PUNCH IN immediately starts the sequencer running and recording at the point indicated by the Measure/Beat/Clock counter.

Once you have punched into a track all material on the track is erased, from the point at which you punched in, to the point at which you punch out.

There are two ways to terminate PUNCH-IN RECORD:

* PRESS ANY KEY (EXCEPT SPACE!) to "punch out" and resume normal playback. Material on the original track after the punch-out point is untouched. Only the part between the punch-in and out points is erased and recorded over.

* PRESS (SPACE) to stop recording and end the track. Any material on the original track after this point is lost. Using (SPACE) to "punch out" can be used to trim up the ends of tracks before you LINK or LOOP them.

Four Things to Remember about PUNCH IN:

* You cannot PUNCH IN on an "blank" track. There must be something recorded on the track you are punching into, if only a note and a hundred measures of rest.

* You cannot PUNCH IN after the end of a track. For example, let's say you recorded 10 measures on Track #1. Next, you recorded 5 measures on Track #2, and pressed (SPACE) to stop recording at Measure 6, Beat 1.

```
        start
TRK.1     1 // 2 // 3 // 4 // 5 // 6 // 7 // 8 // 9 // 10 // end
TRK.2     1 // 2 // 3 // 4 // 5 // end
```

Now, after playing the tracks back, you have decided to add to Track #2 beginning at Measure 8.

While Track #1 is 10 measures long, Track #2 ends at Measure 6, Beat 1, and you cannot successfully punch into Track #2 after that point. Instead you must punch into Track #2 before its original end (on the last beat of Measure 5), let it run to the point at which you wish to begin entering new data (the first beat of Measure 8), then start playing in the new material.

When you want to extend the length of an existing track, you will find that it helps to use the PAUSE and SINGLE-STEP commands (pg.34) to "cue up" the sequencer to the last CLOCK in the track, and then PUNCH IN and go.

* Always punch into a silent spot! A "note" in a MIDI/8 track consists of two pieces of information; a TURN KEY ON message, and at some later point in the track, a TURN KEY OFF message. If you punch into the middle of a sustained note you'll erase the TURN KEY OFF message, and the note sustains indefinitely.

* Never PUNCH IN or OUT while holding down a key! If you are holding a key down when you PUNCH IN, MIDI/8 never "sees" the TURN KEY ON message from the synthesizer, and the note will not be recorded. Similarly, if you're holding a key down when you PUNCH OUT, no TURN KEY OFF message is recorded and the note will sustain indefinitely when played back.

4.0 ADVANCED FEATURES

Once you're familiar with the basic process of recording and overdubbing sequencer tracks, you may want to investigate the more sophisticated possibilities. Most of these are found under the UTILITIES heading on the DISK / EDIT Menu...

```
USED:  nnnnn   CLOCK:  nnn.n.nn
LEFT:  nnnnn

DISK / EDIT / FORMAT / UTILITIES
  PRESS SPACE TO RECORD/PLAY
```

So press (U) to call up the UTILITIES SECTION.

```
                UTILITIES

        1.  DRUMS.............24
        2.  START/STOP.........INT
        3.  CLOCK..............INT
        4.  SEND SEQ. START....ON
        5.  AFTERTOUCH.........ON
        6.  ACTIVE SENSING.....ON
        7.  A-440 REFERENCE....OFF
        8.  WRITE TAPE SYNC....OFF
        9.  LOOP...............OFF

            PRESS SPACE TO EXIT
```

All UTILITIES functions are "toggle switches" and are changed by pressing the associated number key. For example, press (7) to turn on the A-440 Tuning Reference Tone (heard via the speaker in your computer, also available at the CASSETTE OUT jack on the back of the Apple). Press (7) again to turn it off.

4.1 WORKING WITH DRUM MACHINES (UTILITY #1, DRUMS)

Assuming your drum machine is capable of accepting external CLOCK and START/STOP signals, your Passport MIDI system is easily synchronized with your drum machine.

There are two ways to achieve this:

* If your drum machine accepts MIDI IN, it is connected to your system via the MIDI THRU or MIDI OUT jacks and treated the same as any other outboard sequencer. See WORKING WITH EXTERNAL SEQUENCERS, pg.40.

* If your drum machine does not accept MIDI IN, it must be connected to DRUM SYNC on your MIDI Interface Card.

It is important to establish which kind of input your drum machine uses as both KORG and ROLAND market non-MIDI drum machines having 5-pin SYNC jacks that could be mistaken for MIDI IN jacks. Consult your drum machine owner's manual, and the MIDI Interface Users Manual, for installation instructions.

Utility #1, DRUMS, is for use with non-MIDI drum machines connected to the DRUM SYNC jack. (This control does not affect MIDI drum machines connected via the MIDI ports.)

As stated elsewhere, "MIDI Standard Time" is divided into 24 CLOCK pulses per BEAT. Some non-MIDI drum machines use different clock rates, however: KORG and LINN use a rate of 48 CLOCKS/BEAT, OBERHEIM uses 96 CLOCKS per BEAT. This means a KORG or LINN drum machine will run at half speed when connected to DRUM SYNC; an OBERHEIM at one-quarter speed.

To compensate for this we have Utility #1, DRUM SYNC CLOCK RATE CHANGE (or DRUMS for short). Pressing (1) switches the rate from 24 CLOCKS per BEAT to 48 CLOCKS per BEAT. Pressing (1) again switches it back to 24. This affects only the signal coming out the DRUM SYNC jack on the interface.

When the clock rate is set at 48, KORG and LINN drum machines will operate normally. OBERHEIM drum machines will operate at half speed; you will need to take this difference into account when programming the drum machine.

Assuming you have connected both the CLOCK and START/STOP lines from the DRUM SYNC jack to your drum machine, your drum machine will start when the spacebar is pressed to start MIDI/8, run continuously as long as the sequencer is running, and stop when the spacebar is pressed to stop MIDI/8.

One hint:

When working with non-MIDI drum machines, we have found it's easier to program the drum machine first, and then record the sequencer tracks while playing along with the drum machine, rather than trying to sync up the drum machine with already-recorded tracks.

4.2 WORKING WITH EXTERNAL SEQUENCERS

(UTILITY #2, EXTERNAL START/STOP)
(UTILITY #3, INTERNAL/EXTERNAL CLOCK)
(UTILITY #4, SEND SEQUENCER START)

4.2.1 CONTROLLING EXTERNAL SEQUENCERS WITH MIDI/8 PLUS

Assuming they are properly connected into your MIDI system (receiving data from the interface MIDI OUT, and EXTERNAL CLOCK or EXTERNAL TRIGGER enabled) other MIDI sequencers such as those built into KORG's "800"-series synthesizers may be started and stopped under MIDI/8 PLUS program control. Once started, external sequencers will operate in sync with MIDI/8, including staying in sync with changing TEMPO and stopping when MIDI/8 is stopped.

There are two variations on this process:

* If Utility #4, SEND SEQUENCER START, is ON, the external sequencer will start simultaneously with MIDI/8.

* If SEND SEQ. START is OFF, the external sequencer will not start simultaneously with MIDI/8. Instead, (RETURN) is used to switch the external sequencer on or off at your discretion. You may start and stop the external sequencer as often as you like while running MIDI/8.

Even with Send Sequencer Start ON, pressing the (RETURN) key will toggle the external sequencer. If you're recording on MIDI/8 at the time you toggle the external sequencer, THE EXTERNAL SEQUENCER START/STOP COMMAND IS RECORDED. This command becomes part of the track, and continues to operate even if the track is later LINKED or MIXED.

During both record and playback, a flag ("S") to the right of PRESET is used to show the status of the external sequencer, and also to show which track is triggering the external sequencer.

4.2.2 CONTROLLING MIDI/8 PLUS WITH AN EXTERNAL SEQUENCER

An external sequencer may also be used to control MIDI/8. If Utility #2 (START/STOP, normally set to INTERNAL) is switched to EXTERNAL, Utility #3 (CLOCK SOURCE, normally set to INTERNAL) is switched to MIDI, and MIDI OUT of a sequencer, drum machine, or other MIDI device (pg.42) is connected to MIDI IN of the Passport MIDI Interface Card, starting the "other" MIDI device can simultaneously start MIDI/8 PLUS.

To use this feature, it's necessary to "cue up" MIDI/8 to the start of the sequence. With START/STOP set to EXTERNAL, proceed to the PRESS SPACE TO RECORD/PLAY prompt and press (SPACE). MIDI/8 will pause at the beginning of the sequence, and wait for a START command from an external MIDI device before continuing.

If Utility #3 (CLOCK SOURCE, normally INTERNAL) is switched to MIDI, and MIDI OUT of another device is connected to MIDI IN of the Passport Interface, MIDI/8 will run in sync with the "other" device, including staying in sync through tempo changes.

Three Things to Remember about External Sequencers:

* Never change the SEND SEQUENCER START toggle after you've recorded a track with START and STOP commands.

* External Sequencer START/STOP is an overall function. It can not be assigned to a specific instrument or specific channel; rather, it affects the ENTIRE SYSTEM. ALL external sequencers including MIDI drum machines will start and stop at the same time(s).

* Be careful not to overlap START/STOP commands from different tracks. Otherwise, you'll find you're stopping and restarting an external sequence when you want it to be continuous. We have found that the best procedure is to record external sequencer START/STOP commands on one track, and one track only.

4.3 TAPE SYNC
(UTILITY #3, INTERNAL/EXTERNAL CLOCK)
(UTILITY #7, WRITE TAPE SYNC)

The feature "Most Requested by Musicians" is the capacity to start and run MIDI/8 in sync with previously-recorded tracks on multi-track tape decks. In MIDI/8 PLUS, there are three different ways to achieve this end.

4.3.1 With External Sync Box

Owners of external MIDI synchronizing devices such as the KORG KMS-30 should follow the instructions included with the "sync box" as to installation and operation. In most cases, the "sync box" is treated as just another part of the system during the process of creating sequencer tracks.

When the time comes to tranfer tracks from sequencer to tape recorder, the sync box's TAPE WRITE function is enabled. Then, while tape is rolling and the audio output of the synthesizers under MIDI/8 control is being recorded, the sync box lays down start/stop and timing information on a separate track of the tape deck.

To synchronize later sequencer tracks with the recorded tracks, it is necessary to set MIDI/8 to accept the timing information on the tape track in place of the sequencer's own internally-generated timing and start/stop codes. This is done by:

a) Connecting MIDI OUT of the sync box to MIDI IN of the Interface.

b) Setting Utility #3 (CLOCK SOURCE) to MIDI.

In this case, the sync box handles all the details of reading the sync information off the tape track, converting it to MIDI-format data, and sending it to MIDI/8. MIDI/8 treats the data coming from the sync box the same as data from any other MIDI source; provided you have "cued up" MIDI/8 to the start of the sequence, it will start when it's told to, synchronize with the external MIDI CLOCK source, and shut off on command.

MIDI/8 can be started and run by external MIDI data in either PLAYBACK or RECORD mode. This makes it possible to develop additional tracks with the sequencer "slaved" to the tape playback. Then, when you're satisfied with the tracks in the sequencer, you can set the tape deck to SYNC PLAYBACK/RECORD and dump the tracks from the sequencer to the tape.

4.3.2 Passport MIDI Interface w/Tape Sync (MH-02)

Users of the Passport MIDI Interface with Tape Sync need no additional hardware to perform tape sync functions. Connections should be made between the tape sync jacks and the tape deck, as described in the Interface Card Users Manual. When you've developed satisfactory sequencer tracks and are ready to record them on tape, turn ON Utility #8 (WRITE TAPE SYNC). If BEATS was set to 0, turning Utility #8 ON automatically sets BEATS to 1.

You may change BEATS to a higher number, but NEVER SET BEATS TO 0! During the "count off" period, MIDI/8 puts a "ready" code on the tape track being used for sync. On the downbeat of the first measure, this switches to a "running" code.

> THE SWITCH FROM "READY" TO "RUNNING" IS WHAT MIDI/8 USES AS A START CUE. IT MUST BE ON THE TAPE OR THE SYNC TRACK WILL NOT BE USABLE.

So to get the master sync track and the first sequencer track on tape, turn WRITE TAPE SYNC ON, make sure BEATS is not set to 0, start the tape recorder rolling in RECORD, then start the sequencer. When you've finished recording the track stop the sequencer, stop the tape, GO TO THE UTILITY SECTION, AND TURN UTILITY #8, WRITE TAPE SYNC, OFF.

To synchronize later sequencer tracks to the existing tape track, you must:

a) Set Utility #3 (CLOCK SOURCE) to TAPE.

b) Turn Utility #8 (WRITE TAPE) OFF.

Then cue the sequencer up to PRESS SPACE TO RECORD/PLAY, and press (SPACE) With the utilities set correctly and the audio output of the sync track fed into TAPE SYNC IN on the interface, MIDI/8 will start and run in sync with the tape track.

You may need to experiment with the sync track audio level to get TAPE SYNC to work consistently. We recommend recording and playing the sync track at a level of -3 dB, with no noise reduction or signal processing.

4.3.3 "Jump Starts"

In both of the previous cases, the SYNC TRACK and the first SYNTHESIZER AUDIO TRACK must be the very first parts recorded on the tape. It is extremely difficult, if not impossible, to synchronize sequencer parts to an existing track by, say, a human drummer. For either of the above techniques to work, the SYNC TRACK must be the rhythmic "anchor" for everything else that gets recorded.

A third technique, "Jump Start" allows you to start MIDI/8 in sync with existing audio tracks. After the start, though, MIDI/8 gets no further timing information from the tape deck,

so whether or not MIDI/8 stays in sync with the tape depends on the rhythmic accuracy of the earlier tracks, the stability of the tape deck speed, and the integrity of the tape.

To use this, you need:

a) An audio track that starts exactly on the down-beat of the first measure. (No pickup notes or delayed entrances)

b) A cable to connect between the tape deck AUDIO OUT and the CASSETTE IN jack on the Apple.

No additional hardware is needed. This procedure works with both Passport MIDI Interfaces.

After creating your sequencer tracks, connect the AUDIO OUT of the tape channel you're using for the start cue to the CASSETTE IN on the Apple. Then set BEATS to any number except zero, and start sequencer playback by pressing (SPACE) .

AFTER THE LAST "TICK" OF THE COUNT OFF, BUT BEFORE THE FIRST BEAT OF THE SEQUENCER TRACK, PRESS (ESC)

This PAUSES the sequencer at the very start of the track. Any audio signal that comes in the Apple's CASSETTE IN jack now will release the PAUSE and immediately start the sequencer. When you start tape playback, the first sound on the track being fed into the Apple starts sequencer playback. (You may need to experiment with tape deck playback volume to get this technique to work reliably.)

We've found this technique is of most use when doing multiple tracks from MIDI/8. The first MIDI/8-controlled audio track laid down on the tape deck will be "rock solid". As long as the TEMPO setting remains the same, subsequent sequencer tracks should "sync up" with the sequencer tracks on tape.

4.4 AFTERTOUCH & ACTIVE SENSING

(UTILITY #5, AFTERTOUCH)
(UTILITY #6, ACTIVE SENSING)

Utility #5 (AFTERTOUCH) and Utility #6 (ACTIVE SENSING) are 2 toggles designed to conserve memory and improve system data flow.

If your synthesizer has an AFTERTOUCH-sensitive keyboard (as distinguished from a velocity-sensitive keyboard), pressing harder on a key while it is down adds an effect such as vibrato or pitch bend to the sounding note.

Depending on the sensitivity of the keyboard, though, you may be using AFTERTOUCH far more often than you think. If you don't need to record use of AFTERTOUCH, switch Utility #5 OFF to set MIDI/8 to ignore AFTERTOUCH messages. This can save a tremendous amount of track memory.

ACTIVE SENSING is an optional MIDI system-level feature. When ON, it transmits a special code at regular intervals which informs all instruments receiving data from the interface that there is a a transmitter on line.

Once this code is received, all instruments equipped to do so will "expect" this code at regular intervals and shut down if they do not receive it. ACTIVE SENSING, then, is a failsafe designed to protect the system in the event of transmitter failure.

However not all instruments acknowledge ACTIVE SENSING, those that do will function correctly if they never receive it in the first place, and the ACTIVE SENSING code can "clutter up" the MIDI data lines during transmission of fast and complex music. Therefore, we have made ACTIVE SENSING optional.

4.5 LOOP (UTILITY #9)

Utility #9 allows you to play your entire file over and over again forever, or until you stop the sequencer by pressing (SPACE)

Activiate LOOP, after you have finished recording all your sequencer tracks, by selecting (9) from the Utilities Menu. Now when the computer reaches the end of your data file, it will immediately go back to the beginning and repeat.

Some hints:

* The length of your loop is based on the length of Track #1. TRACK #1 MUST BE THE SAME LENGTH OR LONGER THAN ALL OTHER TRACKS. Any notes recorded on other tracks after the end of Track #1 will not be played when LOOP is active. Furthermore any notes being played when Track #1 ends will never receive the "turn note off" command, and will hang until you stop playback.

* NEVER TRY TO LOOP A FILE WHEN TRACK #1 IS EMPTY! If you do you will not be able to stop the sequencer except by turning the computer off. This, of course, destroys any work that you have not saved to disk.

* If you're using a drum machine you must be especially careful as to the length of Track #1. If the loop is the wrong length the drum machine will go out of sync. If you stop the sequencer just before the down beat at the end of recording the first track, the computer will round up the length of the track so that it will loop correctly.

  If the track you record is too long, you may "trim" it to the right length by using the technique described on page 29.

4.6 CONTROL TRACKS

More than just keyboard information is recorded when you are laying down sequencer tracks. The sequencer is also storing pitch bends, preset changes, and all other controller changes.

This opens up the possibility of "control" tracks. You can lay down tracks in which you don't play anything on the keyboard at all, but just make controller changes.

Then, by either MIXING the "control" track with a keyboard track, or simply assigning both tracks to the same output channel, you get a finished sequence that sounds as if you've played a difficult keyboard part and made dozens of controller changes all at the same time.

There are only two limits on "control" tracks:

a) Pitch bend and Modulation are overall effects. When several tracks output thru the same channel, or several instruments receive the same channel, Bend and Modulation will affect all the sounding notes on all the instruments receiving that channel at that time.

b) "Control" tracks should not be AUTOCORRECTED. Doing so may produce unpredictable results.

4.7 ABOUT MULTIPLE KEYBOARD SYSTEMS

If you are using a multiple keyboard system, there are some things you need to keep in mind.

First and foremost, the synthesizer which has its MIDI OUT connected directly to the MIDI IN jack on the interface card is the recording keyboard. All other keyboards in the system are playback-only.

Second, CHANNEL number is irrelevant during recording. All keyboard parts are initially recorded from the one synthesizer that is connected directly to the computer. At the time of recording, it doesn't matter which instrument you wish to hear the music played back through or what CHANNEL the playback instrument is set to receive.

In MIDI/8, data is not "channelized" until it is transmitted. This makes the CHANNEL and MODE setting of the recording instrument irrelevant. When the track is played back, the instrument whose INPUT CHANNEL matches the track's OUTPUT CHANNEL will be the instrument that plays back the track.

Third, it is a good practice to record the tracks that are to play back through your playback-only instruments before recording the track that is to play back through the recording keyboard. The track that will be played back through the recording keyboard should be the last track recorded. This helps minimize confusion and voice drop-out during overdub.

DATA TYPES, CHANNELS, and MODES:

There are four types of MIDI data. SYSTEM COMMON and SYSTEM EXCLUSIVE data aren't used by MIDI/8 software. (Refer to MIDI Specification 1.0 for more information.)

SYSTEM REAL-TIME data is timing information (including MIDI "Master Clock", Start/Stop, and Active Sensing codes) and is received by all instruments in the system, regardless of what input mode or channel they're set for.

CHANNEL-SPECIFIC data includes KEY ON, KEY OFF, PITCH BEND, CHANGE PRESET, and MODULATION codes. They are "stamped" with a code determining their destination. There are 16 CHANNELS in the MIDI system.

The CHANNELS in Passport's MIDI system are not physically separate wires! The concept is more like a TV antenna on an apartment house. All channels are on the same two wires; the actual program you get on your set is determined by how you set the channel selector on your TV.

Which brings us to RECEIVER MODES. MIDI instruments have two toggles which determine how they react to CHANNEL-SPECIFIC data:

a) OMNI. When OMNI is ON, the instrument receives all data being transmitted regardless of channel "stamping". When OMNI is OFF the instrument receives data only from a specific channel, and the second toggle becomes important.

b) POLY/MONO. When this switch is set for POLY and OMNI is OFF, the instrument receives only on its RECEIVE CHANNEL. If set to MONO, the instrument receives on its RECEIVE CHANNEL and up. A six-voice instrument with RECEIVE CHANNEL 11 would receive on channels 11 through 16 in OMNI OFF/MONO mode.

So while a MIDI/8 track can be set to any OUTPUT CHANNEL, the actual destination of the data depends on how the receiving instrument´s OMNI and POLY/MONO switches are set, and what RECEIVE CHANNEL the instrument is set to.

> NOTE! NOT ALL MIDI INSTRUMENTS SUPPORT ALL MIDI MODES AND NOT ALL INSTRUMENTS ALLOW THE USER TO CHANGE THE RECEIVE CHANNEL!

Assuming your instruments support the modes you wish to use and allow receive channel changes, there´s one more consideration in a multi-channel, multi-keyboard setup. That is, the track data is not "stamped" with a channel number until it is transmitted. This means if you MIX two tracks that are set to different CHANNELS, the resulting track will only go out the output channel of the DESTINATION track. The instrument that was set to receive the SOURCE track gets nothing unless you switch it to the DESTINATION track´s channel, and then it will get both the SOURCE and DESTINATION track data.

4.8 DATA FILE COMPATIBILITY

MIDI/8 organizes memory differently depending on whether the Apple it´s running in has 48K or 64K of RAM. 64K Apple II+´s and //e´s have some 10,500 more bytes of track memory available (about 1500 notes), meaning MIDI/8 data files created on 64K machines may be too large to fit into older 48K machines. If you use both a 48K Apple II+ and a 64K (or 128K) Apple //e, the best way to avoid any potential problem is to upgrade your Apple II+ to 64K.

MIDI/4 PLUS data files are completely compatible with MIDI/8, and may be loaded into MIDI/8 by using the READ 4-TRACK FILE option in the Disk Section. (See pg.54). Sequences created with MIDI/8 may be saved in MIDI/4 PLUS file format by using the WRITE 4-TRACK FILE option; however, this option saves only tracks #1 through #4. For complete playback of MIDI/8 data through a MIDI/4 system, it is necessary to MIX (see pg.30) the data down to four tracks before saving the file in MIDI/4 format.

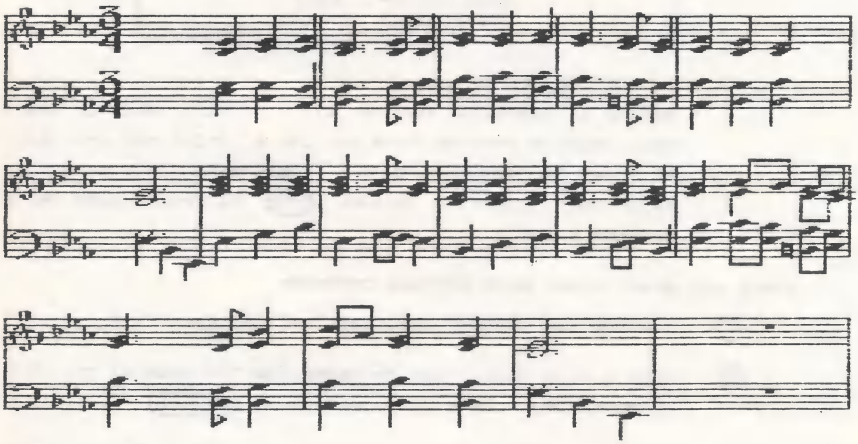
With POLYWRITER UTILITIES, MIDI/8 sequencer data files may be easily converted to POLYWRITER or LEADSHEETER notation files, and POLYWRITER or LEADSHEETER notation files to MIDI/8 sequences. (See next section)

4.9 STEP EDITING

Aside from the obvious use of notating your sequencer tracks, PolyWriter and the PolyWriter Utilities add a whole new range of possibilities to your system. For example, you can use MIDI/8 to experiment with horn arrangements, then when you´re satisfied with the sound, convert the tracks to notation files and print the horn charts out in correct transposition.

PolyWriter is also a phenomenal STEP-EDITING tool for MIDI/8. Parts can be entered in either MIDI/8 or PolyWriter, studied as notation, "cleaned-up" and modified with PolyWriter's full editing features, then converted back into MIDI/8 tracks. Because the tracks are assembled by the computer, they're rhythmically perfect and extremely compact. Because the music is edited as notation, it can be far more complex than "single-step entry" sequencers normally allow.

For example, the following material was originally entered as just a melody line...



Using the melody as an "outline", the alto, tenor, and bass lines were edited in with PolyWriter.

Then, after converting the music to a MIDI/8 sequence and listening to it, we realized that the first "G" in the soprano voice, 10th measure, should be an "A♭", and the "E♭"s in the bass voice, 11th measure, 2nd beat, should be tied. So we went back to the PolyWriter file, fixed those notes, and converted the revised file to a MIDI/8 sequence. This sort of minute detail editing is impossible with ordinary step editing.

5.0 DISK STORAGE

To perform any DISK functions, you must first call up the DISK SECTION by selecting (D) from the DISK/EDIT/FORMAT Menu.

```
          DISK SECTION

     C  CATALOG DISK
     L  LOAD FILE
     S  SAVE FILE
     D  DELETE FILE
     R  READ 4-TRACK FILE
     W  WRITE 4-TRACK FILE

     CTRL-I  INITIALIZE
     DATA DRIVE=1 (ESC)
     PRESS SPACE TO EXIT
```

If you have two disk drives:

Owners of two-disk systems will probably wish to leave their MIDI/8 program disk in the #1 drive and use their #2 drive for the data disk. (This makes EDIT functions more convenient.) Press (ESC) to toggle DATA DRIVE between 1 and 2.

There are seven other DISK SECTION commands:

(C) Display the CATALOG (contents) of the data disk.

(L) LOAD a data file. You're asked for the name of the file to be LOADED. Type it in and press (RETURN)

(S) SAVE a sequencer data file. You're asked for the name of the file to be SAVED. Type it in, make sure you have an initialized data storage disk in the DATA DRIVE and not the MIDI/8 program disk, and press (RETURN)

If you CATALOG the disk after saving a track you'll see that sequencer tracks are saved with the filenames you gave them and the file type " . M8" (e.g. ROCKTUNE.M8). The file type is automatically added by the program dur- LOADING, SAVING, or DELETING. You don't need to worry about it.

(D) DELETE a sequencer file. When you're certain you don't want to keep a file around anymore, DELETE it by selecting (D) from the DISK SECTION. You're asked for the name of the file to DELETED; type it in and press (RETURN) As a "safety", you're then asked ARE YOU SURE? Enter (Y) to proceed, or (N) to give the file a reprieve.

(R) READ (load) a data file created with MIDI/4. Performance data in MIDI/4 files is usable by MIDI/8, however, this special load command is necessary to ensure correct use of the FORMAT SECTION data included in the file. MIDI/4 files load into Tracks #1 thru #4 of MIDI/8; Tracks #5 thru #8 are erased by this operation.

MIDI/4 files have a " . M4" file type. After pressing (R), type in the name of the file and press (RETURN) The ".M4" file type is added automatically.

(W) WRITE (save) a sequencer data file in MIDI/4 format with file type ".M4". You're asked to enter a filename; type it in and press (RETURN) . This procedure saves ONLY tracks #1 through #4. If you have more than 4 tracks of material and wish to save it all, you must first MIX the material down to 4 (or fewer) tracks.

(I) INITIALIZE A DATA DISK. This option completely erases a disk and prepares it for data storage. MAKE SURE YOU HAVE A DISK YOU WON'T MIND ERASING IN YOUR DATA DRIVE!!!

We especially advise caution with regard to your MIDI/8 disk. Using the INITIALIZE function without following the instructions can annihilate your program disk! As a precaution, always keep a write-protect tab on your program disk.

You must INITIALIZE a data disk before you can SAVE your MIDI/8 sequencer track files. To prepare a data disk, get out a blank (or erasable) disk, put it in your DATA DRIVE (see pg.53), hold down the (CONTROL) key and press (I) , and follow the prompts that appear on screen.

Command		Page
	FORMAT SECTION	
	-- Cursor Commands --	
ESC	Select track to work on.	13
->	Move right; select Parameter to change.	13
<-	Move left; select Parameter to change.	13
	-- Format Parameters --	
TR	Track number. Shown for reference.	14
FUNC	O = Off. P = Playback. R = Record.	14
CH	MIDI Output Channel. (1 to 16)	14
PRE	Starting Preset for Sequencer Playback. (1 to 128)	15
INSTR	Identify synthesizer used. (12 letters, RETURN)	16
TEMPO	Record/Playback tempo. (25 to 200)	17
TRANS	Transposition. (+ or -) (0 to 12) half steps.	17
BEATS	O = Off. (1 to 9) = "Count off" before recording.	17
	-- Exit from Format --	
SPACE	Exit to Sequencer & Disk/Edit/Format/Utilities Menu.	18
	SEQUENCER SECTION	
	-- Record Mode --	
SPACE	Toggle sequencer start/stop.	19
	-- Playback Mode --	
SPACE	Toggle sequencer start/stop.	20
->	Speed up playback tempo.	20
<-	Slow down playback tempo.	20
1 - 8	Punch-in RECORD on track 1, 2, 3, 4, 5, 6, 7, or 8.	35
ESC	Pause. (See Pause Mode)	20

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Command		Page
	SEQUENCER SECTION	
	-- Pause Mode --	
F	Fast forward. Press any key to stop.	34
R	Rewind. Press any key to stop.	34
->	Single step advance.	34
<-	Single step rewind.	34
1 - 8	End pause and punch-in RECORD on track 1 thru 8.	35
ESC	End pause and resume PLAYBACK.	34
SPACE	Stop. Return to DISK/EDIT/FORMAT/UTILITIES menu.	34
	EDIT SECTION	
And	Autocorrect notes in Track n to duration d. (1 to 7)	24
En	Erase Track number n.	26
Lxy	Link Track x to end of Track y.	27
Mxy	Mix Track x into Track y. (Erases Track n)	30
	UTILITIES SECTION	
1	Toggle non-MIDI drum machine sync, 24 or 48.	38
2	Toggle sequencer start, Internal or External.	41
3	Toggle clock source, Internal/External MIDI/Tape.	42,44
4	Toggle Send Sequencer Start, ON/OFF.	40
5	Toggle, RECORD or IGNORE Aftertouch.	46
6	Toggle, TRANSMIT or NOT TRANSMIT Active Sensing.	46
7	Toggle A-440 Tuning Reference Tone, ON/OFF.	37
8	Toggle Tape Sync Write, ON/OFF.	43
9	Toggle, LOOP playback.	47
	DISK SECTION	
C	Catalog disk.	54
L	Load sequencer file.	54
S	Save sequencer file.	55
R	Read MIDI/4 data file.	55
S	Save MIDI/4 data file.	55
D	Delete sequencer file.	55
CTRL I	Initialize blank data disk.	55
ESC	Toggle DATA DRIVE, 1 or 2.	54

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